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Description of *Striogyia simianshana* sp. nov. (Lepidoptera, Limacodidae) from Chongqing in southwest China

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Abstract. The discovery of *Striogyia simianshana* **sp. nov.** (Lepidoptera: Limacodidae) resulted from a research project investigating the biodiversity of the Simian Mountain Nature Reserve in Chongqing, Southwest China. This new species is characterised by several distinct features, namely the black, broken postmedial line of the forewing and the long filiform antenna found in males. The shape of its valva, transtilla, juxta and phallus also distinguish it from other congeners. Furthermore, images of the adult habitus and male genitalia are compared with similar species *S. obatera* Wu, 2011 and *S. acuta* Wu, 2020, which further illustrate characteristics unique to *S. simianshana*. A distribution map and key for Chinese *Striogyia* species are provided.

Introduction

The genus *Striogyia* was erected by Holloway in 1986, with *S. snelleni* Holloway, 1986 as the type species. At the same time, Holloway transferred *S. foliola* (Snellen, 1900) to this genus, which was originally placed in the genus *Heterogenea* Knoch, 1783. Later, in 1990, Holloway described a third species *S. spinosa* from Sumatra, Indonesia (Piepers and Snellen 1900; Holloway 1986, 1990). In recent years, Wu (2011, 2020) described two additional species distributed in China: *S. obatera* (Guizhou) and *S. acuta* (Shaanxi). Currently, the genus consists of these five species ranging from Indonesia and Malaysia to China.

The genus is generally characterised by the adult male filiform antennae and the oblique postmedial line running almost from the apex to the posterior margin of the forewing. In the male genitalia, the uncus and gnathos are weak or absent. The transtilla is well developed and strongly sclerotised.

This study focuses on the description of a new species, *S. simianshana* sp. nov., found in Mt. Simian of Chongqing Municipality, China. Although so far only two male specimens have been collected, their appearance differs from other congeners, particularly in the male genitalia. Hence, in this study, we formally describe these specimens as a new species.

Material and methods

The specimens were collected at a 220V/450W mercury light and a DC black light in Mt. Simian. Wingspan was measured from forewing apex-apex and the forewing length from the wing base to the apex. Standard methods for dissection and preparation of the genitalia slides were used (described by Kononenko and Han 2007). The specimens were photographed using a Nikon D700 camera while the photographs of the genitalia slides were captured using an Olympus photo microscope aided by Helicon Focus software and then further processed using Adobe Photoshop CS6. The type material of the new species is deposited in the collection of the Northeast Forestry University (NEFU), Harbin, China.

Abbreviation used

NEFU Northeast Forestry University, Harbin, China.

Taxonomic account

Genus *Striogyia* Holloway, 1986

Striogyia Holloway, 1986. *Malay. Nat. Jour.*, 40 (1–2): 136. Type species: *Striogyia snelleni* Holloway, 1986 (Malaysia: Sarawak).

Key to the Chinese species

1 Forewing with a distinct bar-shaped discal spot ..... *S. acuta* Wu
– Forewing without distinct discal spot, but with an oblique postmedial line.....2
2 Postmedial line obvious, pale grey, running from apex to 3/4 of the posterior margin; the apical process of juxta chimney-shaped .....*S. obatera* Wu
– Postmedial line barely visible, black, broken, running from the apex to the 1/3 of the posterior margin; the apical process of juxta three pronged, with acute apex..... ..... *S. simianshana* Wu, Wu & Han, sp. nov.

Striogyia simianshana Wu, Wu & Han, sp. nov.

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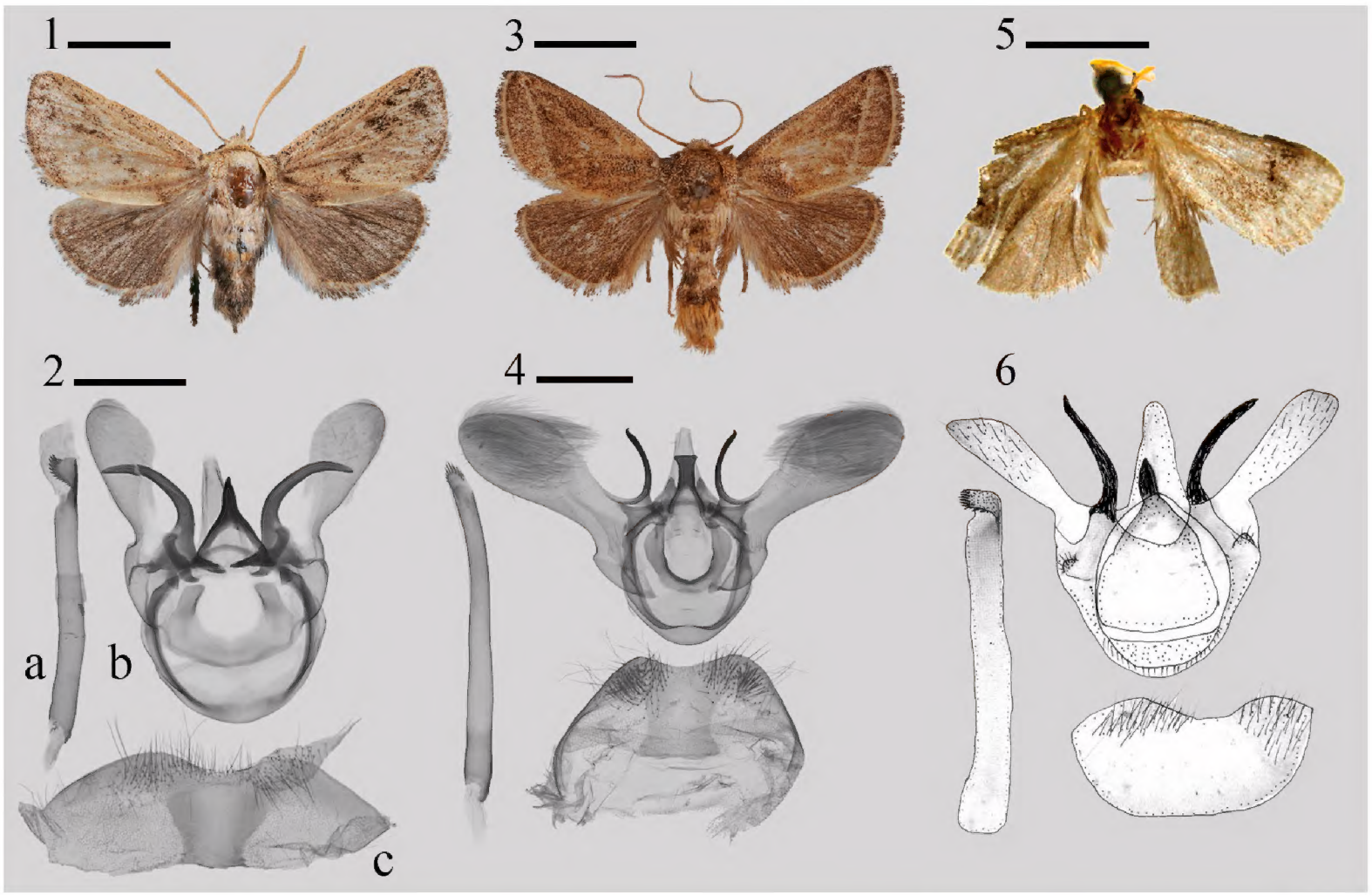
Figures 1, 2

Material examined. ***Holotype*:** ♂, CHINA; Chongqing Municipality, Mt. Simian; 28°34'55"N, 106°21'03"E; 13 Jul. 2019; C. Zhang, X.Y. Zhang, D. Feng leg.; genitalia No. WuJ-281-1; coll. NEFU.

Paratype: 1♂, CHINA; same data as for holotype; coll. NEFU.

Diagnosis. The new species is similar in appearance to *S. obatera* Wu, 2011 (Fig. 3), but can be distinguished from the latter by comparing the antenna, forewing and abdomen. The male antenna of *S. simianshana* is long, and slightly thicker than that of *S. obatera*; the postmedial line of the forewing is black and broken, running from the apex to the posterior margin at ca. 1/3 distance from the wing base; the abdomen is dark brown posteriorly. The male antenna of *S. obatera* is thin; the forewing postmedial line is pale grey and it runs from the apex to the posterior margin at ca. 3/4



Figures 1–6. *Striogyia* spp., adults and male genitalia, with 8th sternite: **1, 2.** *S. simianshana* sp. nov., male, holotype; **3, 4.** *S. obatera* Wu, 2011, Prov. Jiangxi, China, genitalia No. WuJ-325-1; **5, 6.** *S. acuta* Wu, 2020, holotype (after Wu 2020) **a**: phallus, **b**: male genitalia, **c**: 8th sternite. Scale bars: adults, 5 mm; male genitalia, 1 mm.

from the wing base; the abdomen is yellow posteriorly. The visible difference in appearance between this new species and *S. acuta* (Fig. 5), and other congeners is that the latter have a distinct discal spot or a complete postmedial line on the forewing.

In the male genitalia, the new species is similar to *S. acuta* (Fig. 6), but also displays significant differences. In *S. simianshana*, the apex of the valva is rounded; the paired ox horn-shaped processes are strongly curved outwards, with a broad base; and the plate in the apex of the phallus is nearly triangular (Fig. 2). The valva of *S. acuta* is narrower than that of *S. simianshana*; the pair of processes is only slightly curved outwards, with a narrow base; and the plate in the phallus apex is almost rectangular (Fig. 6). The new species shows visible differences in the male genitalia compared to *S. obatera* (Fig. 4) with the apical process of juxta in *S. obatera* being chimney-shaped, while the structures of the other two species are pointed.

Description. Male. (Fig. 1) Forewing length 10 mm; wingspan 22 mm.

Head. Vertex densely covered with greyish-white scales; labial palpus pale brown; the antenna filiform, yellowish-brown.

Thorax. Mainly grey with a few greyish brown scales; tegula pale grey. Forewing base colour greyish-brown, while the colors of the base, costal margin, and terminal areas are darker and mixed with black spots; the black, oblique, broken postmedial line running from the apex to 1/3 of the posterior margin; terminal line dark brown; fringe greyish-white to dark brown. Hindwing base colour dark brown, while the colour of costal margin area is paler; terminal line distinct, brown and the fringe is brown.

Figure 7. Map and habitat of *S. simianshana* sp. nov.. **A.** Collecting site: Chongqing Municipality, Mt. Simian (red dot); **B.** Collecting site close to a subtropical mixed forest.

Abdomen. Dorsally yellowish-brown to dark brown, with mixed yellow and black; 8th sternite (Fig. 2c) slightly sclerotised, concave in distal margin, bearing dense spines.

Male genitalia (Fig. 2a, b). Uncus and gnathos absent. Tegumen narrow, weakly sclerotised. Valva long, extremely narrow at base, rounded at apex; 1/2 of the costa from the base part of valva weakly sclerotised, almost transparent and membranous; the base of sacculus slightly upheaved, with a small triangular process. Transtilla strongly sclerotised, bearing a pair of long, ox horn-shaped processes curved outwards, distinctly broader at the base. The juxta consisting of two parts, the apical part three pronged; the basal part ring-shaped, with width greater than height. Vinculum ring-shaped. Saccus inconspicuous. Phallus slender, longer than the valva, a nearly triangular plate formed on one side of the apex, densely bearing saw-toothed small spines on the edge.

Female. Unknown.

Distribution. China (Chongqing Municipality: Mt. Simian) (Fig. 7A).

Etymology. The species is named for its type-locality in Mt. Simian, Chongqing, China.

Bionomics. The moths fly in July. The specimens were collected with a light trap close to a subtropical mixed forest (Fig. 7B).

Remarks. The Simian Mountain Nature Reserve is located in the southwest of Chongqing Municipality. The region has a subtropical humid monsoon climate with abundant rainfall, and the vegetation types are mainly tropical and subtropical coniferous and broad-leaved mixed forests.

Figure 8. Distribution map of Chinese *Striogyia* spp., circle: *S. simianshana* sp. nov. (Chongqing Municipality); triangles: *S. obatera* Wu, 2011 (Prov. Guizhou, Jiangxi, Zhejiang and Hubei); square: *S. acuta* Wu, 2020 (Prov. Shaanxi).

The main vegetation found around the site where the specimen was collected include *Fagus longipetiolata* Seemen (Fagaceae), *Castanopsis fargesii* Franch. (Fagaceae), *Engelhardia roxburghiana* Wall. (Juglandaceae), *Fokienia hodginsii* (Dunn) A.Henry & H.H.Thomas (Cupressaceae), different kinds of bamboo, and a large number of shrubs and ferns growing in the ground cover layer of the forest. However, the larval host of this species is yet to be determined as no specimens have been collected in its immature stage.

The distribution of the Chinese *Striogyia* species is provided (Fig. 8).

World checklist of the genus *Striogyia*, with distributions

S. acuta Wu, 2020 (China: Shaanxi)
S. foliola (Snellen, 1900) (Indonesia: Java)
S. obatera Wu, 2011 (China: Guizhou, Zhejiang, Jiangxi, Hubei)
S. simianshana Wu, Wu & Han, sp. nov. (China: Chongqing)
S. snelleni Holloway, 1986 (Malaysia: Sarawak)
S. spinosa Holloway, 1990 (Indonesia: Sumatra; ? Singapore)

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